

REMARKS/ARGUMENT

Claims 7, 8, 10, 11, 14, 15, 22-27 and 29 are pending. Claims 24-27 and 29 are the independent claims.

Claims 7, 10, 14, 20, 22, 24-27 and 29 were rejected under 35 U.S.C. 103(a) over U.S. Patent 5,404,513 (Powers et al.) in view of U.S. Patent 6,633,879 B1 (Jeffries). Applicant submits that independent claims 24-27 and 29 are patentable for at least the following reasons.

Independent claim 24 is directed to a computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search. The method comprises: a) forming an assumed tree structure in which all the items of data are stored; b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node; c) forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form; d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure. The predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

Powers et al. shows that in a summary tree, a summary node representing the same set of records may appear in several places of the tree, depending on the order of dimensions used to access it. Accordingly, by reducing from two different summary nodes having the same contents into a single summary node, the amount of memory can be reduced.

In the Office Action, the position was taken, in the Response to Arguments, that Powers' technique, which eliminates redundancy, "implies an 'amount of memory required when replacing a node with a summary table is smaller than that required without the use of such replacing,'" and that an eliminated redundancy "could be used as a condition to determine the generation of summary node 120." This is incorrect.

In Powers the *existence* of redundancy is the condition for deciding whether or not a single summary node is used to replace two summary nodes. In fact, since such replacement *by definition* reduces memory utilization, it makes no sense whatsoever to use possible memory reduction as a criterion for such replacement. And, of course, it is not so used by Powers. Thus, contrary to the statement in the Office Action that it could be used, it is *not* used as a condition. Further, it would make no sense to modify Powers so as to use *a certainty* (memory reduction) as a condition for the substitution. Thus, there would have been no motivation whatsoever to have modified Powers to add steps of making a determination based on this criterion/condition.

In the invention defined by the independent claims, the sub-tree may or may not take up more space than a table that would be used to replace it. One criteria used to decide whether to make the replacement is whether the table would take up more space than the sub-tree it would replace. In contrast, in Powers, multiple identical structures may be replaced by a single structure that represents all the identical structures. Of necessity, there will be a reduction in the amount of memory used, so the fact of the reduction would never be used as a criterion.

As is made clear from the foregoing, in Powers, there is no teaching or suggestion of determining whether the amount of memory required when replacing a node with a summary table is smaller than that required without the use of such replacing. In contrast, the invention defined in claim 24 provides a criterion by which to determine which part of the tree should be replaced with the table. And, that criterion, as defined in the independent claims, is one that is not, and never would be, used in Powers.

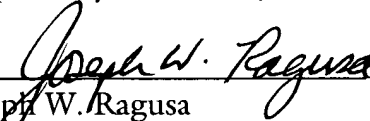
For at least the foregoing reasons, claim 24 is believed clearly patentable over Powers et al. The other independent claims each recite features substantially similar to those discussed above in connection with claim 24 and are believed to distinguish over Powers et al. for at least the same reasons.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

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Respectfully submitted,

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